

## CONTENTS OF VOLUME 36

**Abraham, R. J., Pople, J. A., and Bernstein, H. J.** The analysis of nuclear magnetic resonance spectra. IV. Four nuclei:  $AB_3$ , 1302.

**Abramovitch, R. A.** The infrared spectra of malonate esters, 151.

Tryptamines, carbolines, and related compounds. Part IV. Attempted synthesis of the physostigmine ring system, 354.

**Abramovitch, R. A. and Gear, J. R.** Unsymmetrically substituted 3,3'-methylene bridged 2,2'-dihydroxychromones, 1501.

**Adams, G. A.** Structure of an arabogalactan from white spruce (*Picea glauca* (Moench) Voss), 755.

**Allan, F. J., Allan, G. G., and Thomson, J. B.** The condensation of rhodanine with aromatic dialdehydes and some related compounds, 1579.

**Allan, G. G.** See Allan, F. J., 1579.

**Amberg, C. H.** Gas-liquid partition chromatography of organic sulphur compounds, 590.

**Anderson, R. J.** See Brook, A. G., 159.

**Anet, F. A. L. and Bavin, P. M. G.** Studies in the Wagner-Meerwein rearrangement. Part III, 763.

**Anet, F. A. L. and Eves, C. R.** Lycodine, a new alkaloid of *Lycopodium annotinum*, 902.

**Anet, F. A. L. and Isabelle, E.** The reduction of some halogenated compounds by chromous chloride, 589.

**Anet, R.** Fused heterocyclics. Part II. Synthesis of quinolino-(2:3:3':2')-quinoline: an isomer of calycanine, 1449.

**Anet, R. and Marion, L.** Some structural features of delcosine, 766.

**Archambault, J. and Rivest, R.** Donor acceptor reactions of titanium tetrachloride with formamide and N,N-dimethyl formamide, 1461.

**Armstrong, W. A. and Grant, G. A.** Radiation chemistry of solutions. II. Dose-rate, energy, and temperature dependence of a leuco triarylmethane dosimeter solution, 1398.

**Arnot, C. and McDowell, C. A.** The quenching of the iodine fluorescence spectrum, 114.

Quenching and vibrational-energy transfer of excited iodine molecules, 1322.

**Atkinson, G. F. and McBryde, W. A. E.** Treatment of experimental data in the study of chelation, 393.

**Aubin, R. and Rivest, R.** Sur les réactions des polyesters avec le tétrachlorure de titane. I. La réaction de l'oxalate de diéthyle avec le tétrachlorure de titane, 915.

**Ausloos, P.** The photolysis of alkyl esters, 383.

The liquid phase photolysis of diethyl ketone and methyl ethyl ketone, 400.

**Bailey, R. A.** See Campbell, A. N., 518.

**Balla, G. A.** See Heard, R. D. H., 1260.

**Bannard, R. A. B.** See Hawkins, L. R., 220.

**Bannard, R. A. B., Casselman, A. A., Cockburn, W. F., and Brown, G. M.** Guanidine compounds. II. Preparation of mono- and N,N-di-alkylguanidines, 1541.

**Bannard, R. A. B. and Hawkins, L. R.** Cyclohexane compounds. II. Synthesis and structure of two stereoisomeric 3-amino-1,2-cyclohexanediols, 1241.

**Barth, F. W. and Timell, T. E.** Separation of carbohydrates on cocoanut charcoal columns, 1321.

**Barton, G. M.** See Gardner, J. A. F., 1612.

**Barton, S. S. and Mason, S. G.** Physical adsorption in the benzene-polystyrene system, 1126.

**Bavin, P. M. G.** The preparation of amines and hydrazo compounds using hydrazine and palladized charcoal, 238.

See also Anet, F. A. L., 763.

**Bavin, P. M. G. and Scott, J. M. W.** Some chemistry of 2,6-diethylaniline, 1284.

**Bayley, C. H.** See Gingras, B. A., 1320.

**Becker, H. A.** An interpretation of the moisture desorption isotherm of wheat, 1416.

**Bednas, M. E. and Russell, D. S.** A study of silver nitrate solutions in gas chromatography, 1272.

**Belleau, B.** See Marchini, P., 581.

**Benoit, H.** See Bushuk, W., 1616.

**Benson, G. C.** See White, P., 1135.

**Berg, O. W., Lay, W. P., Rodgman, A., and Wright, G. F.** Deoxymercuration, 358.

**Berisford, R. and Le Roy, D. J.** Reaction of deuterium atoms with ethane—mechanism of methane exchange, 983.

**Berlinguet, L.** See Talbot, G., 593.

**Berman, S. S. and Ironside, R.** A spectrophotometric determination of rhodium with tin (II) bromide, 1151.

**Berman, S. S. and McBryde, W. A. E.** Separations of the platinum metals by ion exchange, 835.

The separation of rhodium and iridium by ion exchange, 845.

**Bernstein, H. J.** See Abraham, R. J., 1302.

**Berry, P. J.** See Roy, J. C., 731.

**Betts, E. E. and MacLean, D. B.** Lycopodium alkaloids. VI. Reactions of the diphenyl derivative of desoxodihydroannotinine, 473.

**Bigelow, C. C. and Cragg, L. H.** Critical concentration effects in polymer-polymer-solvent systems, 199.

**Blades, A. T.** The kinetics of the thermal decomposition of ethyl bromide and ethyl bromide- $d_4$ , 1043.

The mechanism of the pyrolysis of primary alkyl bromides, 1129.

**Blanchfield, R.** See Grant, G. A., 242.

**Bock, E.** See Campbell, A. N., 330, 1277.

**Bock, E., Ferguson, J., and Schneider, W. G.** Photoconductivity and absorption and fluorescence spectra of 9,10-dichloroanthracene, 507.

**Boivin, J. L.** Synthesis of N-substituted diisopropanolamines, their sebacate polyesters and polyurethane elastomers, 1405.  
See also Gagnon, P. E., 737, 1436.

**Boivin, J. L. and Tremblay, M.** Synthesis of guanidine from urea, ammonium benzenesulphonate, and ammonium sulphamate, 378.

**Boivin, P. A.** See Gagnon, P. E., 737.

**Bowering, W. D. S. and Timell, T. E.** An alternative synthesis of 2-O-methyl-D-xylose, 283.

**Brassard, P. and L'Ecuyer, P.** L'arylation des quinones par les sels de diazonium. I. Sur la synthèse des monoaryl-*p*-benzoquinones, 700.  
L'arylation des quinones par les sels de diazonium. II. Sur la synthèse des 2,5-bisaryl-*p*-benzoquinones, 709.  
L'arylation des quinones par les sels de diazonium. III. Sur la synthèse des aryl-chloro-*p*-benzoquinones, 814.  
L'arylation des quinones par les sels de diazonium. IV. Sur la réaction de ces sels avec la 2,5-dihydroxy-*p*-benzoquinone et la synthèse de la 3-hydroxy-2,5-bisphenyl-*p*-benzoquinone, 1346.

**Bright, N. F. H., Rowland, J. F., and Wurm, J. G.** The compound  $\text{CaO} \cdot \text{Ti}_2\text{O}_5$ , 492.

**Bright, N. F. H. and Wurm, J. G.** Some new fluoride complexes of trivalent titanium, 615.

**Brook, A. G., Anderson, R. J., and Van Patot, J. T.** Hydrogen abstraction reactions of diphenylpicrylhydrazyl, 159.

**Brown, G. M.** See Bannard, R. A. B., 1541.

**Brown, W. H. and French, W. N.** Synthesis of porphyrinogen-like compounds (mixed quaterenes), 371.  
The condensation of furan with carbonyl compounds, 537.

**Bullock, E.** The structure of pyrrole salts and the basic strengths of some simple pyrroles, 1686.  
Addition of pyrroles to 1,4-benzoquinone, 1744.

**Burditt, A. M.** See Douglas, D. E., 1256.

**Bushuk, W. and Benoit, H.** Light-scattering studies of copolymers. I. Effect of heterogeneity of chain composition on the molecular weight, 1616.

**Bywater, S.** See Worsfold, D. J., 1141.

**Campbell, A. N. and Bailey, R. A.** The system lithium nitrate - ethanol - water and its component binary systems, 518.

**Campbell, A. N. and Bock, E.** The limiting equivalent conductances of ammonium chloride, ammonium bromide, and ammonium nitrate at 35.00°C., 330.  
The limiting conductance of potassium iodate and of iodate ion at 25.00°C., 1277.

**Campbell, A. N. and Kartzmark, E. M.** The systems  $\text{Li}_2\text{SO}_4 \cdot \text{K}_2\text{SO}_4 \cdot \text{H}_2\text{O}$  and  $\text{Li}_2\text{SO}_4 \cdot \text{Na}_2\text{SO}_4 \cdot \text{H}_2\text{O}$  at 25°C., 171.

**Campbell, A. N., Kartzmark, E. M., and Falconer, W. E.** The system: nicotine - methylethyl ketone - water, 1475.

**Campbell, A. N., Kartzmark, E. M., and Lovering, E. G.** Reciprocal salt pairs, involving the cations  $\text{Li}_2^+$ ,  $\text{Na}_2^+$ , and  $\text{K}_2^+$ , the anions  $\text{SO}_4^{2-}$  and  $\text{Cl}_2^-$ , and water, at 25°C., 1511.

**Campbell, A. N., Kartzmark, E. M., and Sherwood, A. G.** Conductances of concentrated aqueous solutions of mixed electrolytes, 1325.

**Campbell, A. N. and Paterson, W. G.** The conductances of aqueous solutions of lithium chloride at 25.00°C. and at 131.8°C., 1004.

**Canady, W. J. and Laidler, K. J.** Microcalorimetric and kinetic studies of the  $\alpha$ -chymotrypsin - hydrocinnamic ester - hydrocinnamic acid system, 1289.

**Casselman, A. A.** See Bannard, R. A. B., 1541.

**Cerfontain, H. and Kutschke, K. O.** The photolysis of azoethane, 344.

**Chao, T. S.** See Lieber, E., 1441.

**Chenon, B. and Sandorfy, C.** Hydrogen bonding in the amine hydrohalides. I. General aspects, 1181.

**Chisholm, M. J. and Hopkins, C. Y.** Fatty acids of the seed oil of *Cardiospermum halicacabum*, 1537.

**Cockburn, W. F.** See Bannard, R. A. B., 1541.

**Coffman, R. and McClure, D. S.** The electronic spectra of crystalline toluene, dibenzyl, diphenylmethane, and biphenyl in the near ultraviolet, 48.

**Coldwell, B. B. and McLean, S. R.** A new spot test for nitrate ion, 652.

**Connelly, B. T. and Porter, G. B.** Kinetics of excited molecules. I. Ketene, 1640.

**Constantin, R. and L'Ecuyer, P.** Sur la synthèse de quelques xanthones polysubstituées, 1381.  
Sur la synthèse de formyldiphényl éthers polysubstitués, 1627.

**Cragg, L. H.** See Bigelow, C. C., 199; Manson, J. A., 858.

**Craig, B. M. and Murty, N. L.** The separation of saturated and unsaturated fatty acid esters by gas-liquid chromatography, 1297.

**Cvetanović, R. J.** Molecular rearrangements in the reactions of oxygen atoms with olefins, 623.  
See also Dewing, J., 678; Sato, S., 279, 970, 1668.

**Dearden, J. C. and Forbes, W. F.** Light absorption studies. Part XII. Ultraviolet absorption spectra of benzaldehydes, 1362.

**Dewing, J. and Cvetanović, R. J.** The decomposition of nitrous oxide at low pressures on nickel oxide catalysts, 678.

**Dickson, J. H.** See Gagnon, P. E., 737.

**DiGiorgio, V. E.** See Robinson, G. W., 31.

**Douglas, D. E.** and **Burditt, A. M.** The reaction of cyanogen bromide with the sodium salts of carboxylic acids. II. The reaction of cyanogen bromide with the sodium salts of aliphatic acids, 1256.

**Dunn, J. R.** and **Kutschke, K. O.** Photooxidation of ketones in an O<sup>18</sup> enriched environment, 421.

**Dutton, G. G. S.** and **Yates, K.** Methylation of sugar mercaptals. I. Introduction and D-glucose diethyl mercaptal, 550.

**Dyne, P. J.** and **Kennedy, J. M.** The kinetics of radical reactions in the tracks of fast electrons. A detailed study of the Samuel-Magee model for the radiation chemistry of water, 1518.

**Edwards, O. E., Marion, L., and Palmer, K. H.** The interrelation of delpheline and lycocotonine, 1097.

**Elofson, R. M.** The polarographic reduction of diazotized aromatic amines, 1207.

**Elsdon, W. L.** See McKenzie, D. E., 1233.

**Eves, C. R.** See Anet, F. A. L., 902.

**Eyring, H., Stewart, G., and Parlin, R. B.** Diabatic reactions, 72.

**Falconer, W. E.** See Campbell, A. N., 1475.

**Falk, M.** See Giguère, P. A., 883.

**Falk, M. and Giguère, P. A.** On the nature of sulphurous acid, 1121.

Infrared spectra and structure of selenious acid, 1680.

**Favre, H.** and **Marinier, B.** Sur la transformation de la dihydrohétéroconessine en dihydroconessine, 429.

**Ferguson, J.** See Bock, E., 507.

**Ferguson, J.** and **Schneider, W. G.** The polarized fluorescence of very thin anthracene crystals, 1070.

On the spectral response of photoconductivity in thin single crystals of anthracene, 1633.

**Flengas, S. N.** and **Ingraham, T. R.** Voltaic cells in fused salts. Part III. The system silver - silver chloride, cadmium - cadmium chloride, 780.

Voltaic cells in fused salts. Part IV. Electrode potentials of the systems: Ti/TiCl (KCl-NaCl), Cu/CuCl (KCl-NaCl), Cu/CuCl<sub>2</sub> (KCl-NaCl), Cr/CrCl<sub>2</sub> (KCl-NaCl), and Cr/CrCl<sub>3</sub> (KCl-NaCl). Redox potentials of the systems: Pt/CuCl, CuCl<sub>2</sub> (KCl-NaCl), and Pt/CrCl<sub>2</sub>, CrCl<sub>3</sub> (KCl-NaCl), 1103.

Voltaic cells in fused salts. Part V. The systems Sn/SnCl<sub>2</sub> (KCl-NaCl), Fe/FeCl<sub>2</sub> (KCl-NaCl), and Mn/MnCl<sub>2</sub> (KCl-NaCl), 1662.

**Fletcher, J. W.** See McKenzie, D. E., 1233.

**Flood, E. A.** Some thermodynamic considerations of the effects of stress on metal electrode potentials, 1332.

**Forbes, W. F.** Light absorption studies. Part XI. Electronic absorption spectra of nitrobenzenes, 1350.

See also Dearden, J. C., 1362.

**Forbes, W. F.** and **Leckie, I. R.** Light absorption studies. Part XIII. The electronic absorption spectra of ring-substituted anilines, 1371.

**Forbes, W. F., Ralph, A. S., and (in part) Gosine, R.** Light-absorption studies. Part X. Ultraviolet spectra in acid and basic media—some further observations on the ortho effect, 869.

**Forbes, W. F.** and **Templeton, J. F.** The study of hydrogen bonding and related phenomena by ultraviolet light absorption. Part I. Introduction, 180.

**Forrest, T. P.** and **Ryan, D. E.** Sulphinic acids as analytical reagents, 1674.

**Forst, W.** Second-order unimolecular kinetics in the thermal decomposition of hydrogen peroxide vapor, 1308.

**Foster, J. S.** See Pate, B. D., 1691.

**French, W. N.** See Brown, W. H., 371, 537.

**Frost, D. C.** and **McDowell, C. A.** Excited states of the molecular ions of hydrogen fluoride, hydrogen iodide, water, hydrogen sulphide, and ammonia, 39.

**Frost, G. B.** See McAdie, H. G., 635.

**Gagnon, P. E., Boivin, J. L., Boivin, P. A., and Dickson, J. H.** Alkylguanidine nitrates and alkyl-nitroguanidines, 737.

**Gagnon, P. E., Boivin, J. L., and Zauhar, J.** Syntheses of substituted guanidines, 1436.

**Gagnon, P. E., Keirstead, K. F., and Newbold, B. T.** The relation between the sulphate and nitrogen content of unstabilized cellulose nitrate, 212.

A contribution to the chemistry of unstabilized cellulose nitrate, 215.

Determination of sulphate acid ester in unstabilized cellulose nitrate by the hydrolysis method, 291.

Slurry titrations of unstabilized cellulose nitrate, 672.

**Gagnon, P. E., Keirstead, K. F., Newbold, B. T., and Thomas, J.** Influence of water concentration on the hydrolysis of unstabilized cellulose nitrate in acetone/water solution, 695.

Hydrolysis of sulphate acid ester in unstabilized cellulose nitrates, 1039.

**Gaind, V. S.** See Wheeler, O. H., 1735.

**Gardner, J. A. F.** and **Barton, G. M.** Occurrence of  $\beta$ -dolabrin (4-isopropenyltropolone) in Western red cedar (*Thuja plicata* Donn.), 1612.

**Garnaise, D. L.** See McKay, A. F., 147.

**Gaudry, R.** See Talbot, G., 593.

**Gavin, G.** See Winthrop, S. O., 722, 879.

**Gayer, K. H.** and **Thompson, L. C.** The solubility of uranium peroxide in acidic and basic media at 25° C, 1649.

**Gayer, K. H., Thompson, L. C., and Zajicek, O. T.** The solubility of aluminum hydroxide in acidic and basic media at 25° C, 1268.

**Gear, J. R.** See Abramovitch, R. A., 1501.

**George, M. V.** and **Wright, G. F.** The electric moments of some N,N'-disubstituted piperazines, 189.

**George, Z. M., Wright, A. N.** and **Winkler, C. A.** The reactions of dimethyl- and trimethyl-amines with atomic hydrogen, 1171.

**Georgiaff, K. K.** and **Richard, Y.** Diacetylene: preparation, purification, and ultraviolet spectrum, 1280.

**Giacometti, G.** and **Steacie, E. W. R.** The gas phase reactions of perfluoro-*n*-propyl radicals with methane and ethane, 1493.

**Giguère, P. A.** See Falk, M., 1121, 1680.

**Giguère, P. A., Knop, O.** and **Falk, M.** Hydrogen peroxide and its analogues. VIII. Excess functions for the binary systems  $H_2O-H_2O_2$  and  $D_2O-D_2O_2$ , 883.

**Giguère, P. A.** and **Zengin, N.** Spectre infrarouge de HF à l'état cristallin, 1013.

**Gill, E. K.** and **Laidler, K. J.** Reactions involving electronically-excited oxygen, 79.

Theoretical aspects of the unimolecular decomposition of nitrous oxide, 1570.

**Gillham, J. K., Perlin, A. S.** and **Tirrell, T. E.** The configuration of glycosidic linkages in oligosaccharides. VII. 4-O- $\beta$ -D-Galactopyranosyl-D-galactose from white birch wood, 1741.

**Gillham, J. K.** and **Tirrell, T. E.** The hemicellulose of white elm (*Ulmus americana*). I. Identification of 2-O-(4-O-methyl-D-glucopyranosyluronic acid)-D-xylopyranose, 410.

The hemicellulose of white elm (*Ulmus americana*). II. Constitution of the methyl glucurono-xylan, 1467.

**Gingras, B. A.** and **Bayley, C. H.** Polyoxyethyleneglycol ethers. Part II, 1320.

**Goldman, G. K.** See Rao, C. N. R., 1596.

**Goodings, J. M.** See Lake, P. E., 1089.

**GORIN, P. A. J.** and **Perlin, A. S.** D-Apiose, 480.

Hydrogenolysis of carbohydrates. IV. 1,2-O-Isopropylidene-D-glucofuranose, 661.

The configuration of glycosidic linkages in oligosaccharides. VI. Degradation of 4-O-methyl-D-glucopyranosyl-aldoiburonate to 2-O-(4-O-methyl-D-glucopyranosyl)-glycerols, 999.

**Goring, D. A. I.** See Huque, M. M., 952.

**Goring, D. A. I.** and **Rezanowich, A.** Physicochemical studies of ligninsulphonates. III. Properties of fractions prepared by successive sulphonation of periodate lignin, 1653.

**Gosine, R.** See Forbes, W. F., 869.

**Goton, R.** and **Whalley, E.** The thermodynamic properties of benzoic acid, 720.

**Graham, G. D.** and **Maass, O.** A modification of the direct current conductance method, 315.

**Grant, G. A.** See Armstrong, W. A., 1398; McIvor, R. A., 820.

**Grant, G. A., Blanchfield, R.** and **Smith, D. M.** Triarylmethane compounds as redox indicators in the Schoenemann reaction. III. The dyes and their spectra, 242.

**Greenblatt, J. H.** Note on the rate of evolution of hydrogen at a magnesium anode, 1138.

**Grey, A. A.** See McIvor, R. A., 820.

**Grivas, J. C.** and **Taurins, A.** Reaction of trichloroacetonitrile with primary and secondary amines. Part I. Preparation of some trichloroacetamides, 771.

**Gunning, H. E.** Primary processes in reactions initiated by photoexcited mercury isotopes, 89.

**Habgood, H. W.** The kinetics of molecular sieve action. Sorption of nitrogen-methane mixtures by Linde Molecular sieve 4A, 1384.

**Hamblin, M. C.** See Lee, C. C., 1597.

**Hawkins, L. R.** See Bannard, R. A. B., 1241.

**Hawkins, L. R.** and **Bannard, R. A. B.** Ammonolysis of 1,2-epoxycyclohexane and *trans*-2-bromocyclohexanol, 220.

**Hazell, J. E.** and **Russell, K. E.** The reaction of 2,2-diphenyl-1-picrylhydrazyl with secondary amines, 1729.

**Heacock, R. A.** and (in part) **Mahon, M. E.** The chemistry of the "aminochromes". Part II. The preparation, paper chromatography, and spectroscopic properties of pure adrenolutin; the infrared spectrum of adrenochrome, 1550.

**Heacock, R. A., Nerenberg, C.** and **Payza, A. N.** The chemistry of the "aminochromes". Part I. The preparation and paper chromatography of pure adrenochrome, 853.

**Heard, R. D. H., Balla, G. A., Jamieson, J. R.** and **Ziegler, P.** Studies on the mechanisms of cyclization of ring A of steroids during the Reformatsky reaction, 1260.

**Herron, J. T.** and **Schiff, H. I.** A mass spectrometric study of normal oxygen and oxygen subjected to electrical discharge, 1159.

**Heyding, R. D.** See Taylor, J. B., 597.

**Hites, R. D.** See Lieber, E., 801.

**Holbrook, K. A.** and **Ouellet, L.** The non-enzymatic hydrolysis of *p*-nitrophenyl phosphate, 686.

**Hopkins, C. Y.** See Chisholm, M. J., 1537.

**Hough, L., Jones, J. K. N.** and **Mitchell, D. L.** The preparation of some derivatives of D-ribono-1- $\rightarrow$ 4-lactone and D-ribitol, 1720.

**Hubley, C. E.** See McIvor, R. A., 820.

**Huque, M. M., Goring, D. A. I.** and **Mason, S. G.** Molecular size and configuration of cellulose trinitrate in solution, 952.

**Hyde, J. C.** See Leger, A. E., 1584.

**Ingraham, T. R.** See Flengas, S. N., 780, 1103, 1662.

**Ironside, R.** See Berman, S. S., 1151.

**Isabelle, E.** See Anet, F. A. L., 589.

**Isabelle, M. E.** and **Leitch, L. C.** Organic deuterium compounds. XIX. Synthesis of some deuterated lauric acids and their methyl esters, 440.

**İsfendiyaroğlu, A. N.** See Talât-Erben, M., 1156.

**Iveković, H.** See Vrbaški, T., 1410.

**Ives, D. A. J.** and **O'Neill, A. N.** The chemistry of peat. Part I. The sterols of peat moss (*Sphagnum*), 434.  
The chemistry of peat. II. The triterpenes of peat moss (*Sphagnum*), 926.

**James, N.** See Lee, C. C., 1597.

**Jamieson, J. R.** See Heard, R. D. H., 1260.

**Jones, J. K. N.** See Hough, L., 1720.

**Jones, J. K. N.** and **Mitchell, D. L.** The synthesis of  $\omega$ -deoxy- $\omega$ -S-ethyl-polyols, 206.

**Jones, R. N.** and **Spinner, E.** The infrared carbonyl stretching bands of acetophenones substituted in the methyl group, 1020.

**Kabayama, M. A.** and **Patterson, D.** The thermodynamics of mutarotation of some sugars. II. Theoretical considerations, 563.

**Kabayama, M. A.**, **Patterson, D.**, and **Piche, L.** The thermodynamics of mutarotation of some sugars. I. Measurement of the heat of mutarotation by microcalorimetry, 557.

**Kartzmark, E. M.** See Campbell, A. N., 171, 1325, 1475, 1511.

**Keirstead, K. F.** See Gagnon, P. E., 212, 215, 291, 672, 695, 1039.

**Kennedy, J. M.** See Dyne, P. J., 1518.

**Kim, J. S.** See Pinkus, A. G., 296.

**Kirby, P.** and **Maass, O.** A study of the conductivity of certain acids and alkali halides in glycol and the influence of the addition of a second solvent, 456.

**Klassen, N. V.**, **Onyszchuk, M.**, **McCabe, J. C.**, and **Winkler, C. A.** The reactions of active nitrogen with cyclopropane, cyclobutane, and cyclopentane, 1217.

**Knop, O.** See Giguère, P. A., 883.

**Kommandeur, J.**, **Korinek, G. J.**, and **Schneider, W. G.** The change of photoconduction and semi-conduction in aromatic hydrocarbons on melting, 513.  
Photoconductivity of some polynuclear aromatic hydrocarbons, 607.

**Korinek, G. J.** See Kommandeur, J., 513, 607.

**Kouris, M.**, **Ruck, H.**, and **Mason, S. G.** The effect of water removal on the crystallinity of cellulose, 931.

**Kreling, M.-E.** and **McKay, A. F.** Some new sulphonamides and derivatives of bicyclic guanidines, 775.

**Kulka, M.** Seven- and eight-membered rings containing carbon and two sulphur atoms, 750.

**Kutschke, K. O.** See Cerfontain, H., 344; Dunn, J. R., 421.

**Laidler, K. J.** Kinetic laws for surface reactions in flow systems, 1081.  
See also Canada, W. J., 1289; Gill, E. K., 79, 1570; Papée, H. M., 1338.

**Laidler, K. J.** and **Ramsay, D. A.** A report on a symposium held by the Physical Chemistry Division of the Chemical Institute of Canada, 1.

**Lake, P. E.** and **Goodings, J. M.** The nature of the cadmium ions in hydroxide and carbonate solutions, 1089.

**Lang, A. A.** and **Sukava, A. J.** The system KOH-K<sub>2</sub>CO<sub>3</sub>-H<sub>2</sub>O at low temperatures. I. Phase equilibria, 1064.

**Lay, W. P.** See Berg, O. W., 358.

**Leckie, I. R.** See Forbes, W. F., 1371.

**L'Ecuyer, P.** See Brassard, P., 700, 709, 814, 1346; Constantin, R., 1381, 1627.

**Lee, C. C.**, **Hamblin, M. C.**, and **James, N.** Rearrangement studies with C<sup>14</sup>. VI. The Friedel-Crafts alkylation of benzene with ethyl- $\beta$ -C<sup>14</sup> iodide, 1597.

**Leger, A. E.**, **Hyde, J. C.**, and **Sheffer, H.** Light-scattering studies on aluminum distearate, 1584.

**Leitch, L. C.** See Isabelle, M. E., 440.

**Le Roy, D. J.** See Berisford, R., 983.

**Lieber, E.**, **Rao, C. N. R.**, **Chao, T. S.**, and **Rubinstein, H.** The ultraviolet and infrared spectra of vicinal-triazole derivatives, 1441.

**Lieber, E.**, **Rao, C. N. R.**, **Pillai, C. N.**, **Ramachandran, J.**, and **Hites, R. D.** The infrared spectra of 4-substituted-thiosemicarbazides and diazotization products, 801.

**Linnett, J. W.** Equivalent orbitals and the shapes of excited species, 24.

**Lounsbury, M.** See McFadden, W. H., 990.

**Lovering, E. G.** See Campbell, A. N., 1511.

**Maass, O.** See Graham, G. D., 315; Kirby, P., 456; Thomas, D. K., 449, 744; Weinberger, M. A., 1455.

**McAdie, H. G.** and **Frost, G. B.** Studies of the mechanism of the formation and decomposition of the molecular complex between solid urea and *n*-octane vapor, 635.

**McBryde, W. A. E.** See Atkinson, G. F., 393; Berman, S. S., 835, 845.

**McCabe, J. C.** See Klassen, N. V., 1217.

**McCallum, K. J.** See Nelson, D. H., 979.

**McClure, D. S.** Energy transfer in molecular crystals and in double molecules, 59.  
See also Coffman, R., 48.

**McDowell, C. A.** See Arnot, C., 114, 1322; Frost, D. C., 39.

**McDowell, C. A.** and **Sharples, L. K.** The photochemical oxidation of aldehydes in the gaseous phase. Part I. The kinetics of the photochemical oxidation of acetaldehyde, 251.  
The photochemical oxidation of aldehydes in the gaseous phase. Part II. The kinetics of the photochemical oxidation of propionaldehyde, 258.  
The photochemical oxidation of aldehydes in the gaseous phase. Part III. The absolute values of the velocity constants for the propagating and terminating steps in the photochemical oxidation of acetaldehyde and propionaldehyde, 268.

**McElcheran, D. E., Wijnen, M. H. J., and Steacie, E. W. R.** The photolysis of methyl cyanide at 1849 Å, 321.

**McFadden, W. H., Lounsbury, M., and Wahrhaftig, A. L.** The mass spectra of three deuterated butanols, 990.

**McIvor, R. A., Hubley, C. E., Grant, G. A., and Grey, A. A.** The infrared spectra of organo-phosphorus compounds. II. The 1-2.6  $\mu$  region, 820.

**McKay, A. F.** See Kreling, M.-E., 775; Tarlton, E. J., 496.

**McKay, A. F., Skulski, M., and Garmaise, D. L.** Reaction of amino alcohols with carbon disulphide, 147.

**McKenzie, D. E., Elsdon, W. L., and Fletcher, J. W.** The extraction of plutonium from neutron-irradiated uranium by uranium trichloride and by magnesium chloride, 1233.

**McKinley, J. D., Jr. and Polanyi, J. C.** Chemiluminescence in the system atomic sodium plus atomic hydrogen, 107.

**MacLean, D. B.** See Betts, E. E., 473; Perry, G. S., 1146.

**McLean, S. R.** See Coldwell, B. B., 652.

**McMillan, G. and Wijnen, M. H. J.** Reactions of alkoxy radicals. V. Photolysis of di-*t*-butyl peroxide, 1227.

**Mahon, M. E.** See Heacock, R. A., 1550.

**Manske, R. H. F.** See Perry, G. S., 1146.

**Manson, J. A. and Cragg, L. H.** A study of graft copolymers. I. Preparation and viscosity behavior, 858.

**Marchini, P. and Belleau, B.** The synthesis of cryptopleurine and related phenanthroquinolizidines, 581.

**Marcus, R. A.** Studies of chemical reactions of excited species using intense light sources, 102.

**Marinier, B.** See Favre, H., 429.

**Marion, L.** See Anet, R., 766; Edwards, O. E., 1097; Seaton, J. C., 1031; Wiehler, G., 339.

**Mason, S. G.** See Barton, S. S., 1126; Huque, M. M., 952; Kouris, M., 931; Murray, F. E., 415.

**Mateos, J. L.** See Wheeler, O. H., 712, 1049, 1431.

**Merritt, W. F.** Radiochemical analysis for long-lived fission products in environmental materials, 425.

**Miller, M. L.** Block and graft polymers. I. Graft polymers from acrylamide and acrylonitrile, 303. Block and graft polymers. II. Block polymers from acrylamide and acrylonitrile and acrylamide and acrylic acid, 309.

**Minkoff, G. J.** Excited states of acetylene and their role in pyrolysis, 131.

**Mitchell, D. L.** See Hough, L., 1720; Jones, J. K. N., 206.

**Moore, A. M.** Ultraviolet irradiation of pyrimidine derivatives. II. Note on the synthesis of the product of reversible photolysis of uracil, 281.

**Morris, W. and Pidgeon, L. M.** The vapor pressure of lithium in the reduction of lithium oxide by silicon, 910.

**Mousseau, T. J.** See Weinberger, M. A., 1455.

**Mulliken, R. S.** The lower excited states of some simple molecules, 10.

**Murray, F. E. and Mason, S. G.** Coexistence phenomena in the critical region. V. The gravity effect in the binary liquid system aniline-cyclohexane from light scattering, 415.

**Murty, N. L.** See Craig, B. M., 1297.

**Nelson, D. H. and McCallum, K. J.** Chemical effects of the  $\text{Br}^{81}(\gamma, \alpha)\text{As}^{77}$  reaction in bromides, 979.

**Nerenberg, C.** See Heacock, R. A., 853.

**Newbold, B. T.** See Gagnon, P. E., 212, 215, 291, 672, 695, 1039.

**Novak, A. and Whalley, E.** The structures of  $\alpha$ - and  $\beta$ -parachloral, 1116.

**Okabe, H. and Steacie, E. W. R.** The fluorescence and its relationship to photolysis in hexafluoroacetone vapor, 137.

**O'Neill, A. N.** See Ives, D. A. J., 434, 926.

**Onyszchuk, M.** See Klassen, N. V., 1217.

**Ouellet, L.** See Holbrook, K. A., 686; Pelletier, G. E., 896.

**Palmer, K. H.** See Edwards, O. E., 1097.

**Papée, H. M.** On the preparation and sintering of cloud precipitating agents. Lead di-iodide micro-crystals, 1443.

**Papée, H. M. and Laidler, K. J.** Microcalorimetry of the adsorption of water vapor on sodium chloride, 1338.

**Parlin, R. B.** See Eyring, H., 72.

**Pate, B. D.** Fission of excited heavy nuclei, 1707.

**Pate, B. D., Foster, J. S., and Yaffe, L.** Distribution of nuclear charge in the proton-induced fission of  $\text{Th}^{232}$ , 1691.

**Paterson, W. G.** See Campbell, A. N., 1004.

**Patterson, D.** See Kabayama, M. A., 557, 563.

**Pavlović, D.** See Vrbaški, T., 1410.

**Payza, A. N.** See Heacock, R. A., 853.

**Pelletier, G. E. and Ouellet, L.** Influence of calcium ions on the myosin-catalyzed hydrolysis of adenosine triphosphate, 896.

**Perlin, A. S.** Radiochemical evidence for heterogeneity in wheat starch, 810. See also Gillham, J. K., 1741; Gorin, P. A. J., 480, 661, 999.

**Perlin, A. S., von Rudloff, E., and Tulloch, A. P.** Hydrogenolysis of carbohydrates. V. Isomerization of methyl  $\beta$ -L-arabopyranoside, 921.

**Perry, G. S., MacLean, D. B., and Manske, R. H. F.** Lycopodium alkaloids. VII. The reaction of annotinine with phenyl lithium, 1146.

**Piche, L.** See Kabayama, M. A., 557.  
**Pidgeon, L. M.** See Morris, W., 910.  
**Pillai, C. N.** See Lieber, E., 801.  
**Pinkus, A. G.** and **Kim, J. S.** The reaction of carbon disulphide with alumina, 296.  
**Podleschka, P.**, **Westland, L.**, and **Wright, G. F.** Some anomalous electrical polarizations, 574.  
**Polanyi, J. C.** Quenching and vibrational-energy transfer of excited iodine molecules, 121.  
     See also McKinley, J. D., Jr., 107.  
**Pople, J. A.** See Abraham, R. J., 1302.  
**Porter, G. B.** See Connelly, B. T., 1640.  
**Puddington, I. E.** See Sirianni, A. F., 543; Tremblay, R., 725.  
**Ralph, A. S.** See Forbes, W. F., 869.  
**Ramachandran, J.** See Lieber, E., 801.  
**Ramsay, D. A.** See Laidler, K. J., 1.  
**Rao, C. N. R.** See Lieber, E., 801, 1441; Smith, P., 1174.  
**Rao, C. N. R.** and **Goldman, G. K.** Resonance parameters from reactivity constants, 1596.  
**Reeves, L. W.** and **Schneider, W. G.** Nuclear magnetic resonance measurements of proton transfers in acetylacetone in diethylamine and triethylamine, 793.  
**Reichmann, M. E.** Potato X virus. Part I. The size and size distribution of potato X virus in tobacco sap, 1603.  
**Rezanowich, A.** See Goring, D. A. I., 1653.  
**Richard, Y.** See Georgieff, K. K., 1280.  
**Rivest, R.** See Archambault, J., 1461; Aubin, R., 915.  
**Robinson, G. W.** and **DiGiorgio, V. E.** The nature of formaldehyde in its low-lying excited states, 31.  
**Rodgman, A.** See Berg, O. W., 358.  
**Rowland, J. F.** See Bright, N. F. H., 492.  
**Rowlinson, H. C.** The effect of addition of potash to nickel chromite catalysts, 1053.  
**Roy, J. C.**, **Berry, P. J.**, and **Roy, L. P.** Reactor neutron-capture cross section of 18-minute Rb<sup>88</sup>, 731.  
**Roy, J. C.** and **Wuschke, D.** Neutron capture cross section of <sup>119</sup>I and <sup>110</sup>I, 1424.  
**Roy, L. P.** See Roy, J. C., 731.  
**Rubinstein, H.** See Lieber, E., 1441.  
**Ruck, H.** See Kouris, M., 931.  
**von Rudloff, E.** Synthesis of some hexanediols, 486.  
     See also Perlin, A. S., 921.  
**Russell, D. S.** An infrared cell for small gas samples, 1745.  
     See also Bednas, M. E., 1272.  
**Russell, K. E.** See Hazell, J. E., 1729.  
**Ryan, D. E.** See Forrest, T. P., 1674.  
**Sandorfy, C.** Note on the inductive and mesomeric effects in substituted benzene derivatives, 1739.  
     See also Chenon, B., 1181.  
**Sandri, R.** On the decomposition flame of ozone at high pressure, 1210.  
**Sato, S.** and **Cvetanović, R. J.** Long-wavelength limit of photooxidation of butene-1 by nitrogen dioxide, 279.  
     Photooxidation of butene-1 and isobutene by nitrogen dioxide, 970.  
     Photooxidation of butenes by nitrogen dioxide at different wave lengths, 1668.  
**Sawatzky, H.** and **Wright, G. F.** The electrical polarizations of bis-mercurials, 1555.  
**Schierholz, O. J.** The crystallization of calcium sulphate dihydrate, 1057.  
**Schiff, H. I.** See Herron, J. T., 1159.  
**Schneider, W. G.** See Bock, E., 507; Ferguson, J., 1070, 1633; Commandeur, J., 513, 607; Reeves, L. W., 793; Waddington, T. C., 789.  
**Scott, J. M. W.** See Bavin, P. M. G., 1284.  
**Seaton, J. C.**, **Tondeur, R.**, and **Marion, L.** The structure of mitraphylline, 1031.  
**Sharples, L. K.** See McDowell, C. A., 251, 258, 268.  
**Sheffer, H.** See Leger, A. E., 1584.  
**Sherwood, A. G.** See Campbell, A. N., 1325.  
**Singh, L.** Classical approach to the structure of condensed-ring aromatic compounds—a rejoinder to the problem of dibenzo(cd,mn)pyrene, 1028.  
**Sirianni, A. F.** See Tremblay, R., 725.  
**Sirianni, A. F.**, **Tremblay, R.**, and **Puddington, I. E.** The molecular weight of polyvinyl acetate, 543.  
**Skulski, M.** See McKay, A. F., 147.  
**Smith, D. M.** See Grant, G. A., 242.  
**Smith, F. G.** Gaseous and liquid states of aggregation in the supercritical region, 1131.  
**Smith, P.** and **Rao, C. N. R.** Prediction of some thermodynamic properties employing the isoelectronic principle, 1174.  
**Sobering, S. E.** and **Winkler, C. A.** The reactions of active nitrogen with chloromethanes, 1223.  
**Spinner, E.** See Jones, R. N., 1020.  
**Stacie, E. W. R.** See Giacometti, G., 1493; McElcheran, D. E., 321; Okabe, H., 137.  
**Stevens, B.** Some effects of intramolecular vibrational energy transfer in complex fluorescent molecules 96.  
**Stewart, G.** See Eyring, H., 72.  
**Stonhill, L. G.** The determination of UO<sub>3</sub> and U<sub>3</sub>O<sub>8</sub> in brown oxide, 1487.  
**Sukava, A. J.** See Lang, A. A., 1064.  
**Symposium on the structure and reactivity of electronically-excited species**, 1-146.

**Talât-Erben, M.** and **İsfendiyaroğlu, A. N.** The extent of the abnormal recombination of cyanisopropyl free radicals from 2,2'-azo-bis-isobutyronitrile, 1156.

**Talbot, G., Gaudry, R., and Berlinguet, L.** Synthesis of 4-aminobutyric acid and 2,4-diaminobutyric acid from butyrolactone, 593.

**Tarlton, E. J. and McKay, A. F.** Amino acids. IV. The reaction of glycine and  $\beta$ -alanine with carbon disulphide, 496.

**Taurins, A.** Nitrimino-(1H)pyridinium and nitrimino-(3H)thiazolium inner salts. The structure of some nitrimines in the light of infrared study, 465.  
See also Grivas, J. C., 771.

**Taylor, G. W.** Peroxides in the combustion of isobutane, 1213.

**Taylor, J. B. and Heyding, R. D.** Arsenates of the transition metals. The arsenates of cobalt and nickel, 597.

**Templeton, J. F.** See Forbes, W. F., 180.

**Thomas, D. K. and Maass, O.** Electrolytic conductance in hydrogen peroxide - water mixtures. Part I. The alkali chlorides, 449.  
Electrolytic conductance in hydrogen peroxide - water mixtures. Part II. Some monobasic and dibasic acids, 744.

**Thomas, J.** See Gagnon, P. E., 695, 1039.

**Thompson, L. C.** See Gayer, K. H., 1268, 1649.

**Thomson, J. B.** See Allan, F. J., 1579.

**Tickner, A. W.** The determination in situ of the carbon content of solid products in reaction vessels, 718.

**Timell, T. E.** See Barth, F. W., 1321; Bowering, W. D. S., 283; Gillham, J. K., 410, 1467, 1741.

**Tondeur, R.** See Seaton, J. C., 1031.

**Tremblay, M.** See Boivin, J. L., 378.

**Tremblay, R.** See Sirianni, A. F., 543.

**Tremblay, R., Sirianni, A. F., and Waddington, I. E.** The molecular weight of polyethylene and of other high-molecular-weight organic compounds, 725.

**Tulloch, A. P.** See Perlin, A. S., 921.

**Van Patot, J. T.** See Brook, A. G., 159.

**Vrbas̄ki, T., Iveković, H., and Pavlović, D.** The spontaneous precipitation of hydrated alumina from aluminate solutions, 1410.

**Waddington, T. C. and Schneider, W. G.** The effect of the ambient gases on the surface photocurrent in anthracene, 789.

**Wahrhaftig, A. L.** See McFadden, W. H., 990.

**Weinberger, M. A., Mousseau, T. J., and Maass, O.** Electrolysis of lithium hydride, 1455.

**Westland, L.** See Podleschka, P., 574.

**Whalley, E.** Conformational effects and the influence of pressure on reaction rates, 228.  
See also Goton, R., 720; Novak, A., 1116.

**Wheeler, O. H.** Étard reaction. I. Its scope and limitation with substituted toluenes, 667.  
Étard reaction. II. Polycyclic aromatic and heterocyclic compounds, 949.

**Wheeler, O. H. and Gajd, V. S.** Dissociation constants of the cyanohydrins of some triterpene ketones, 1735.

**Wheeler, O. H. and Mateos, J. L.** Reactivity studies on natural products. IV. Dissociation constants of the cyanohydrins of some steroid ketones, 712.  
Reactivity studies on natural products. V. Rates of borohydride reduction of some ring A and B steroid ketones, 1049.  
Stereochimistry of reduction of ketones by complex metal hydrides, 1431.

**Wheeler, O. H. and Zabicky, J. Z.** Structure and properties of cyclic compounds. XI. Dissociation constants of the cyanohydrins of some methylecyclohexanones, 656.

**White, P. and Benson, G. C.** Ultrasonic absorption in butyric acid, 1135.

**Wiehler, G. and Marion, L.** ( $\leftarrow$ )-Homostachydrine, a new alkaloid isolated from the seeds of *Medicago sativa* L. Grimm, 339.

**Wijnen, M. H. J.** Photolysis of acetone in the presence of methyl-d<sub>4</sub> acetate, 176.  
Photolysis of *n*- and *i*-propyl propionate, 691.  
See also McElcheran, D. E., 321; McMillan, G., 1227.

**Wiles, D. R.** Exchange between thallous and thallic ions in the presence of sulphate ion, 167.

**Wilmshurst, J. K.** The infrared and Raman spectrum of dimethoxymethane, 285.

**Winkler, C. A.** See George, Z. M., 1171; Klassen, N. V., 1217; Sobering, S. E., 1223.

**Winthrop, S. O. and Gavin, G.** 1-Arylsulphonyl-3-*n*-butyl-2-methyl-2-thiopseudoureas, 722.  
2-Benzhydrylimino-4-thiazolidones and related compounds, 879.

**Worsfold, D. J. and Bywater, S.** Anionic polymerization of  $\alpha$ -methylstyrene. Part II. Kinetics, 1141.

**Wright, A. N.** See George, Z. M., 1171.

**Wright, G. F.** See Berg, O. W., 358; George, M. V., 189; Podleschka, P., 574; Sawatzky, H., 1555.

**Wurm, J. G.** See Bright, N. F. H., 492, 615.

**Wuschke, D.** See Roy, J. C., 1424.

**Yaffe, L.** See Pate, B. D., 1691.

**Yates, K.** See Dutton, G. G. S., 550.

**Zabicky, J. Z.** See Wheeler, O. H., 656.

**Zajicek, O. T.** See Gayer, K. H., 1268.

**Zauhar, J.** See Gagnon, P. E., 1436.

**Zengin, N.** See Giguère, P. A., 1013.

**Ziegler, P.** See Heard, R. D. H., 1260.

